

Fasciola hepatica infection at a University Clinic in Turkey

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Abstract

Introduction: We aimed to analyze the approaches to the diagnosis and treatment of patients with fascioliasis in light of current literature.

Methodology: Thirty-nine patients with fascioliasis admitted to the Surgery Clinic of Dicle Medical Faculty (Turkey) were included in this study. The demographic, clinical, diagnostic, treatment and outcome data were analyzed retrospectively.

Results: Abdominal pain (n = 37; 95%) and eosinophilia (n = 31; 79%) were the most common findings. Twenty-seven patients were diagnosed by clinical and radiological findings. Patients were treated with triclabendazole. Thirty-six (92.4%) of the patients improved after medical treatment.

Conclusions: The presence of typical clinical, laboratory and radiological findings is sufficient for diagnosis. Triclabendazole administration is often an effective treatment, with improvements occurring over the course of a few months.

Key words: *Fasciola hepatica*; diagnosis; treatment.

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Introduction

Fascioliasis is a zoonotic disease caused by *Fasciola hepatica* and usually affects herbivorous mammals. More than 180 million people are at risk [1,2]. Humans become infected by eating contaminated watercress [3]. After ingestion, the metacercariae excyst and pass into the peritoneal cavity, after which they enter the liver parenchyma (hepatic phase). They migrate through the liver parenchyma to enter the bile ducts, where they mature and release eggs (biliary phase). This process often lasts between 1 and 3 months [4]. *Fasciola hepatica* can live up to 13.5 years in untreated patients [5]. The symptoms of this disease are similar to those of liver abscesses. However, the symptoms caused by the metacercariae are milder [6]. The aim of this study was to analyze approaches to the diagnosis and treatment of fascioliasis in light of current literature.

Methodology

Data from 39 patients with fascioliasis who were admitted to our clinic between August 2005 and June 2013 were analyzed retrospectively. Patients were diagnosed with fascioliasis if they had disease-specific clinical, laboratory and radiological findings such as abdominal pain, fever, weight loss, eosinophilia,

anemia, elevation in liver function tests, or hypodense lesions in the liver. Twenty-seven patients were diagnosed by clinical and radiological findings, 8 by histopathological examination, and 4 by visualization of the parasite by endoscopic retrograde colangiopancreatography (ERCP). All patients with fascioliasis were treated with 10 mg/kg/day triclabendazole for two consecutive days. Patients were followed up at the first, third and ninth month after treatment, where their clinical, laboratory and radiological findings were evaluated. Patients who did not improve by the third month were re-treated with triclabendazole. Patients who developed complications were treated with invasive procedures, including surgical or percutaneous drainage of the liver abscess. The study was approved by the ethics committee of Dicle University, Faculty of Medicine.

Statistical Analysis

Data analysis was performed with SPSS 11.5 (SPSS Inc., Chicago, IL, USA). Quantitative values are presented as mean \pm standard deviation, while nominal data are presented as frequency and percentage.

Results

Among the patients diagnosed with fascioliasis, 30 (77%) were female. The mean age was 45.77 ± 16.53 (18-83) years. The mean duration of the symptoms was 72.6 (1-350) weeks. Twenty three patients (59%) lived in rural areas. Twenty eight patients were admitted between March and June (72%) (Figure 1). The most common symptom was abdominal pain and the most common clinical finding was abdominal tenderness. Eosinophilia was the most common laboratory finding (Table 1). Thirty seven patients underwent abdominal ultrasound (US), 29 were evaluated by abdominal computed tomography (CT), and 23 underwent abdominal magnetic resonance imaging (MRI). The most common radiological findings were typical lesions in the liver. The lesions were subcapsular round or tubular with irregular margins that tended to merge together and settle around the biliary tract in the liver (Table 2). None of the patients had parasite eggs in their stools. An enzyme linked immuno sorbant assay (ELISA) test for *Fasciola hepatica* antibodies in the blood was only performed in 12 patients prior to treatment, and 11 of these were positive. Twenty seven patients (69.2%) were diagnosed via clinical, laboratory and

radiological findings, while 8 (20.5%) were diagnosed by review of their pathological specimens. Live parasites were removed from the common bile duct by ERCP in 4 patients (10.3%).

All patients were treated with 10 mg/kg/day triclabendazole for two consecutive days. The patients were followed up with on the first, third, sixth, ninth and twelfth month after treatment. Improvements in the clinical and laboratory findings were generally observed in the first month, but improvements in radiologic findings were observed after the third month. Twelve months after treatment, the liver lesions of 31 patients (88.6%) showed radiological improvement. The dimension of lesions did not change after the twelfth month in 4 of the patients (11.4%), while 4 patients did not have any liver lesions.

Five (12.8%) patients did not show any clinical, laboratory or radiological improvement at follow-up, and as a result they were re-treated with triclabendazole. Three of them improved during the second follow-up, but 2 developed hepatic abscess and underwent an invasive procedure.

Initially, eight patients were overlooked and misdiagnosed with hepatic abscess.

Table 1. Demographic data, symptoms, clinical and laboratory findings

Demographic data		
Gender	Male n(%)	9 (23)
	Female n(%)	30 (77)
Mean age (Years, Mean \pm SD)		45.77 \pm 16.53
Duration of symptoms (Weeks)		72.6 (1-350)
Patients lived in	Rural areas (n,%)	23 (59)
	Urban areas (n,%)	16 (41)
Symptoms		n (%)
Abdominal pain		37 (95)
Fever		11 (28)
Weight loss		10 (20)
Nausea		8 (20)
Pruritus		8 (20)
Jaundice		7 (17)
Fatigue		7 (17)
Cough		3 (7)
Clinical findings		n (%)
Abdominal tenderness		29 (75)
Fever		8 (20)
Jaundice		4 (10)
Laboratory findings		n (%)
Eosinophilia		31 (79)
Anemia		25 (64)
Hypoalbuminemia		17 (44)
Increased liver function tests		15 (38)
Increased CRP		14 (35)
Increased Total Bilirubine		4 (1)

CRP: C reactive protein

Figure 1. Distribution of admission by month.

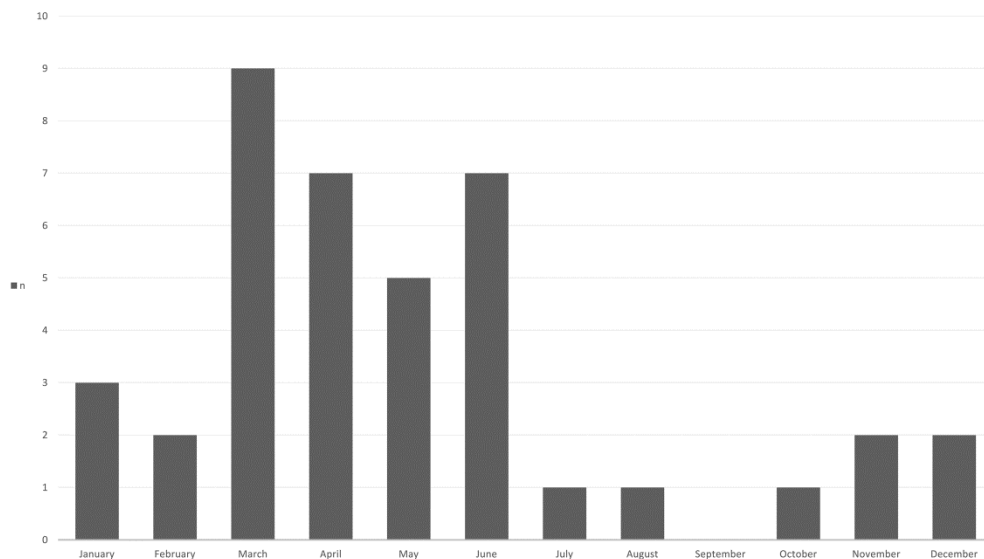


Table 2. Radiologic findings in patients

Ultrasound findings (37 patients)	n(%)
Hypoecic lesion in the liver	28 (75)
Hepatomegaly	8 (%22)
Periportal lymphadenopathy	5 (14)
Splenomegaly	5 (14)
Dilatation of the bile ducts	3 (8)
Wall thickening of the bile ducts	2 (5)
Live parasite in the bile duct	1 (3)
Pleural effusion	1 (3)
Computed Tomography findings (29 patients)	n(%)
Hypodens lesions in the liver	28 (96)
Periportal lymphadenopathy	13 (44)
Hepatomegaly	8 (28)
Dilatation of the bile ducts	5 (17)
Perihepatic fluid	5 (17)
Filling defect in the common bile duct	2 (7)
Pleural effusion	1 (3)
Hyperdense lesion in the liver	1 (3)
Subcapsular hematoma in the liver	1 (3)
Thickening of the colon wall	1 (3)
Magnetic Resonance Imaging findings (23 patients)	n(%)
T1 hypointense, T2 hyperintense lesions in the liver	18 (78)
Wall thickening of the bile ducts	4 (17)
Filling defect in the common bile duct	2 (8)
Pleural effusion	2 (8)
Capsular enhancement of the liver	1 (4)
Subcapsular hematoma in the liver	1 (4)
T1 hyperintense lesion in the liver	1 (4)

Four of them underwent surgery, while the other 4 underwent US-guided percutaneous drainage. All 8 of them were eventually diagnosed with fascioliasis and were treated with triclabendazole. One of these eight patients required another invasive procedure. While 10 (25.6%) of the patients underwent an invasive procedure, only 3 (7.6%) underwent invasive procedures after treatment with triclabendazole.

Discussion

Our patients' demographic data was similar to those reported in previous studies. Most patients were from rural areas and most of them were admitted to hospital in spring, similar to the reports from the literature [7-10]. Eosinophilia, which has been reported to be the most common laboratory finding in this disease, was detected in 79% of our patients [8].

The most common radiological findings of this disease are lesions with irregular margins that tend to merge together and settle around the biliary tract in the liver, hepatomegaly, bile duct dilatation and wall thickening, and periportal lymphadenopathy [8,9,11,12]. In their study, Kabaalioglu *et al.* reported that 90% of patients had liver lesions, and 79% of them had multiple lesions [13]. The symptoms, clinical and radiological findings of our patients were similar to those of previously published studies.

The definitive diagnosis of this disease is confirmed by the demonstration of parasite eggs in the stool, serological tests, or by visualizing the parasite during surgery or ERCP [8]. It has been reported that the number of eggs in the stool is related to the severity of the infection [6]. We did not detect eggs in the stools of any patient, which may be due to the fact that severity of infection in our patients was low. Since serologic tests for fascioliasis were not available in our hospital in previous years, we were only able to test the blood of 12 patients for fascioliasis. Eleven of these tests were positive before treatment.

Triclabendazole is the treatment of choice for fascioliasis. It is administered at a dose of 10 mg/kg/day either once or twice over two consecutive days [14]. Upon diagnosis, all of the patients were treated with triclabendazole. Despite medical treatment, 3 (7.6%) patients had to undergo a further invasive procedure. Studies on the efficacy of triclabendazole in fascioliasis revealed a success rate of 79.2% for one dose of 10 mg/kg/day, and a success rate of 92.2% for 10 mg/kg/day over two consecutive days [15,16]. We achieved a 92.4% success rate with the two-dose treatment.

Removing interference in the biliary tract by ERCP is a safe and effective way to treat obstructive jaundice due to fascioliasis [17]. Live parasites were removed from the bile duct by ERCP in 4 (10.3%) of our patients.

The efficiency of fascioliasis treatment can be monitored by the improvement in clinical symptoms, laboratory findings and radiological findings [8]. Graham CS *et al.* reported that the clinical and laboratory findings of patients with fascioliasis improved in the months following triclabendazole treatment [4]. These findings were observed within 1 month, and radiological improvement began after 3 months in our patients. The lesions in the liver improved in 88.6% of them after the twelfth month. A surgery rate of 6.9% has been reported for patients with fascioliasis [8]. Unnecessary surgical procedures may be performed if the proper diagnosis is overlooked [9,18]. In our study, a total of 10 (25.6%) patients underwent invasive procedures, although 8 of them underwent these procedures before being diagnosed with fascioliasis. Then, they were treated with triclabendazole, and only 1 of them needed to undergo a second invasive procedure. Only 2 patients initially treated with triclabendazole needed a further invasive procedure. In total, only 3 (7.6%) patients treated with triclabendazole underwent an invasive procedure, which is similar to the rate reported in the literature. We believe that as experience with this disease increases, the rate of unnecessary surgeries will decrease. Limitations of this study include its retrospective nature and low number of patients.

Conclusion

In most patients with fascioliasis, the presence of common clinical symptoms, eosinophilia, and other typical radiological findings are sufficient for diagnosis. Treatment with 10 mg/kg/day triclabendazole for two consecutive days is effective. The effectiveness of the treatment could be seen by improvements in clinical and laboratory, and radiological findings. Surgical treatment is only needed in patients who do not respond to the medication or who develop complications.

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